

Appl. No 10/660,922

Amdt. Dated August 29 2005

Reply to office action of August 17, 2005

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**Amendments to the Claims**

1. (currently amended) An adjustable tray size seedling planting apparatus for a multitude of seedlings contained in a tray configured in a rectangle with 4 edges, a top, and a bottom, with multiple rows of seedling growing cells containing seedling root balls comprising:
  - a. means for a tractor connection;
  - b. means for adjusting planted seedling spacing;
  - c. means for seedling tray size adjustment;
  - d. means for seedling tray cell spacing adjustment;
  - e. means for individual seedling extraction; and
  - f. means for seedling alignment and planting such that the seedling is positioned at the planting means and the seedling root ball is surrounded with soil.
2. (currently amended) An adjustable tray size seedling planting apparatus for a multitude of seedlings contained in a tray configured in a rectangle with 4 edges, a top, and a bottom, with multiple rows of seedling growing cells containing seedling root balls as in claim 1 further comprising the means for a tractor connection is comprised of a connection to the tractor hydraulic system including a valve[.] such that the trailer hydraulic system provides a hydraulic pressure to the adjustable tray size seedling planting apparatus that varies with the speed of the tractor and the position of the valve.
3. (previously presented) An adjustable tray size seedling planting apparatus for a multitude of seedlings contained in a tray configured in a rectangle with 4 edges, a top, and a bottom, with multiple rows of seedling growing cells containing seedling root balls as in claim 2 further comprising the means for adjusting planted seedling spacing is comprised of:
  - a. a control camshaft having a hydraulic motor, a cam shaft, a multiplicity of cams, a multiplicity of cam followers, and a multiplicity of cam follower switches, the hydraulic motor removably connected to the tractor hydraulic system such that the motor turns at a speed proportional to the speed of the tractor, the cams adjustably connected to the camshaft and the camshaft connected to the motor such that the cams rotate at the speed of the motor, the speed of the motor determined by the hydraulic pressure from the tractor; the cam followers moving linearly in response to the cam

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in the open position, and as the drive mechanism moves the extension tube towards the lower end of the track slot, the seedling extractor control rod end moves past the extension tube slot end to contact the seedling such that the seedling is removed from the extractor blade seedling grasping portions.

8. (previously presented) An adjustable tray size seedling planting apparatus for a multitude of seedlings contained in a tray configured in a rectangle with 4 edges, a top, and a bottom, with multiple rows of seedling growing cells containing seedling root balls as in claim 7 further comprising the seedling alignment and planting means is comprised of:
- a. a multitude of seedling chutes, the seedling chutes configured at each seedling extractor, each having an inside surface and an outside surface, a receiving end and a kicker end the inside surface of the kicker configured to reduce the cross-sectional area with distance from the receiving end, the receiving end arranged such that the extractor positioned at the lower end of the extractor track slot to release a seedling causes the seedling to drop into the chute inside surface, the kicker end with a kicker slot with an upper end and an open end, a movable kicker with a blade, an operating lever arranged to move the blade, an operating shaft, and a drive cylinder, the drive cylinder arranged to rotatably move the drive shaft, such that it moves the operating shaft and swingably moves the kicker blade, then rotatably move the drive shaft in the opposite direction such that the kicker blade is substantially returned to the original position, the blade with a horizontal portion and a vertical portion, the horizontal portion configured to fit within the chute cross-section at the upper end of the kicker slot and arranged such that a seedling dropping in the chute will be retained by the kicker horizontal portion, the vertical portion configured substantially in the side configuration of a seedling tray cell wherein swing motion of the kicker blade out of the slot moves the horizontal portion to an angle and drops a retained seedling from the chute and swing motion in the opposite direction brings the vertical portion in contact with the dropped seedling to place it in the vertical position; and
  - b. a multitude of seedling planting mechanisms, each seedling planting mechanism configured at each seedling chute, each comprising a furrow shaper shoe with a left blade with an inside surface and an outside surface, a right blade with an inside surface and an outside surface, and a connecting tip, and furrow closure means, the

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furrow shaper shoe configured such that the tip is toward the direction of travel of the planting apparatus, the blade outside surfaces configured to create a furrow essentially in the shape of a seedling tray cell, the blades having a gap between the inside surface configured in the shape of a seedling tray cell and arranged below the seedling chute kicker end wherein a seedling dropped from the chute will fall in the gap and the vertical portion of the kicker will align the seedling between the inside surfaces of the planting mechanism, the furrow closure means then closing the furrow around the seedling.

9. (previously presented) A method of removing seedlings from tray containers of differing sizes and seedling spacing and planting the seedlings in a prepared growing field comprising:
  - a. connecting an adjustable tray size seedling planting apparatus to a tractor;
  - b. adjusting the seedling planting apparatus for the tray size;
  - c. inserting seedling tray containers in the seedling planting apparatus;
  - d. setting the seedling planting apparatus to the tray cell spacing; and
  - e. moving the tractor connected to the planting apparatus continuously along the furrows in a growing field.
10. (withdrawn) A seedling extractor apparatus for removing seedling root balls from a seedling tray configured with multiple rows of seedling growing cells and arranged on a vertical holder such that the seedling cells are horizontal comprising:
  - a. a housing, an extension tube with an operating end and an insertion end, the insertion end slidably installed in the housing, an inside wall and an outside wall, a top side and a bottom side, the bottom side containing a longitudinal slot with a slot entrance and a slot end, and a retaining pin hole, a control rod, a control rod end, an extractor seedling handler slidably installed in the extension tube operating end with a seedling end and a u-shaped spring end, the seedling end with a first blade and an opposing second blade, each opposing blade having an end, a seedling grasping portion, a sloped portion, a u-shaped spring end, the u-shaped spring end springedly connected in a u-shape, an extractor handler retaining pin, a drive mechanism, the drive mechanism controlled by the seedling control camshaft, and a release mechanism;